

CLAIMS

1. An information recording apparatus  
comprising: temporary storage means temporarily storing  
5 data in a data recordable information recording medium  
on the occasion of recording and/or reproduction; and  
control means dividing a storage area of said temporary  
storage means to a plurality of areas according to a  
mode of recording the data in said information recording  
10 medium.

2. The information recording apparatus as  
claimed in claim 1, wherein:  
said control means comprises means for  
15 storing data in a respective predetermined buffering  
manner in each area.

3. The information recording apparatus as  
claimed in claim 1, wherein:  
20 said control means comprises means for  
storing data in at least one of the respective areas in  
a ring buffering manner.

4. The information recording apparatus as  
25 claimed in claim 1, wherein:

said temporary storage means comprises means for storing data in a ring buffering manner in which a ring start pointer and a ring end pointer can be set, and said control means comprises means for storing data  
5 in the ring buffering manner in at least one of the respective areas with setting the ring start pointer and the ring end pointer.

5. The information recording apparatus as  
10 claimed in claim 1, wherein:

recording means for recording data in the recording area of the information recording medium and verifying means for carrying out verification processing of reproduced data from the recording area after being  
15 recorded by said recording means and detecting a defect are provided;

said control means divides the storage area of the temporary storage means into at least a recording data storage area storing data to record in said  
20 information recording medium and a verification storage area storing data reproduced by said verifying means; data to record in the information recording medium is stored in said recording data storage area; and the recorded data reproduced by the verifying means is  
25 stored in said verification storage area.

6. The information recording apparatus as claimed in claim 5, wherein:

5       said control means comprises means for holding the data stored in the recording data storage area until verification processing by said verifying means is completed.

7. The information recording apparatus as claimed in claim 5, wherein:

10       said control means comprises means for holding at least data of the data stored in the recording data storage area from among the data stored in said recording data storage area, and said at least data to hold is one for which verification processing by  
15       said verifying means is not completed

8. The information recording apparatus as claimed in claim 5, wherein:

20       said control means comprises means for setting a size of said verification storage area so that said size becomes smaller than the recording data storage area.

9. The information recording apparatus as  
25       claimed in claim 1, wherein:

recording means for recording data in the  
recording area of said information recording medium and  
reproducing means for reproducing data recorded in the  
recording area of the information recording medium are  
5 provided; and

said control means divides the storage area  
of said temporary storage means into at least a  
recording data storage area storing data to record in  
the information recording medium and a reproduced data  
10 storage area storing data reproduced from the  
information recording medium; storing the data to record  
in the information recording medium in said recording  
data storage area; and, when a reproduction request is  
received during recording by said recording means, said  
15 reproducing means is made to store data reproduced from  
the information recording medium in said reproduced data  
storage area.

10. The information recording apparatus as  
20 claimed in claim 9, wherein:

said recording means records data  
sequentially in the recording area of the information  
recording medium.

25 11. The information recording apparatus as

claimed in claim 9, wherein:

said recording means keeps a waiting state of waiting before starting data recording until a data occupation amount in said recording data storage area reaches a predetermined threshold, enters a recording state starting the data recording when the data occupation amount exceeds the predetermined threshold, and records data in the recording area of the information recording medium; and

means for immediately causing the reproducing means to reproduce data when a reproduction request is received during the waiting state is provided.

12. The information recording apparatus as claimed in claim 9, wherein:

said recording means keeps a waiting state of waiting before starting data recording until a data occupation amount in said recording data storage area reaches a predetermined threshold, enters a recording state starting the data recording when the data occupation amount exceeds the predetermined threshold, and records data in the recording area of the information recording medium; and

means for causing the reproducing means to reproduce data after waiting for at least a completion

of recording of continuously recordable data of the data in said recording data storage area when a reproduction request is received during the recording state is provided.

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13. The information recording apparatus as claimed in claim 9, wherein:

said recording means keeps a waiting state of waiting before starting data recording until a data  
10 occupation amount in said recording data storage area reaches a predetermined threshold, enters a recording state starting the data recording when the data occupation amount exceeds the predetermined threshold, and records data in the recording area of the  
15 information recording medium; and

means for transferring the data from the recording data storage area to a reproduction request sender when the recording means receives a reproduction request from a recording area to record the data from  
20 said recording data storage area during the waiting state is provided.

14. The information recording apparatus as claimed in claim 9, wherein:

25 said control means comprises means for

16. The information recording method as claimed in claim 15, wherein:

17. The information recording method as  
20 claimed in claim 15, wherein:

25            18.    The information recording method as

claimed in claim 15, wherein:

said control step comprises a step of storing data in a ring buffering manner in which a ring start pointer and a ring end pointer can be set, and data is  
5 stored in the ring buffering manner in at least one of the respective areas with setting the ring start pointer and the ring end pointer.

19. The information recording method as  
10 claimed in claim 15, wherein:

a recording step of recording data in the recording area of the information recording medium and a verifying step of carrying out verification processing of reproduced data from the recording area after being  
15 recorded in said recording step and detecting a defect are provided; said control step comprises a step of dividing the storage area of the temporary storage means into at least a recording data storage area storing data to record in said information recording medium and a  
20 verification storage area storing data reproduced by said verifying step; the data to record in the information recording medium is stored in said recording data storage area, and the recorded data reproduced by the verifying step is stored in said verification  
25 storage area.



20. The information recording method as claimed in claim 19, wherein:

said control step comprises a step of holding the data stored in the recording data storage area until  
5 the verification processing by said verifying step is completed.

21. The information recording method as claimed in claim 19, wherein:

10 said control step comprises a step of holding at least data of the data stored in the recording data storage area from among the data stored in said recording data storage area, and said at least data to hold is one for which the verification processing by  
15 said verifying step is not completed.

22. The information recording method as claimed in claim 19, wherein:

said control step comprises a step of setting  
20 a size of said verifying storage area so that said size becomes smaller than the recording data storage area.

23. The information recording method as claimed in claim 15, wherein:

25 a recording step of recording data in the

recording area of said information recording medium and  
a reproducing step of reproducing data recorded in the  
recording area of the information recording medium are  
provided; and said control step comprises a step of  
5 dividing the storage area of said temporary storage  
means into at least a recording data storage area  
storing data to record in the information recording  
medium and a reproduced data storage area storing data  
reproduced from the information recording medium; and,  
10 when a reproduction request is received during recording  
in said recording step, data reproduced from the  
information recording medium is stored in said  
reproduced data storage area in said reproducing step.

15                   24. The information recording method as  
claimed in claim 23, wherein:  
                  said recording step comprises a step of  
recording data sequentially in the recording area of the  
information recording medium.

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                  25. The information recording method as  
claimed in claim 23, wherein:  
                  said recording step comprises a step of  
keeping a waiting state of waiting before starting data  
25 recording until a data occupation amount in said

recording data storage area reaches a predetermined threshold, entering a recording state starting the data recording when the data occupation amount exceeds the predetermined threshold, and recording data in the  
5 recording area of the information recording medium; and a step of immediately reproducing data in the reproducing step when a reproduction request is received during the waiting state in the recording step, is provided.

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26. The information recording method as claimed in claim 23, wherein:

said recording step comprises a step of keeping a waiting state of waiting before starting data  
15 recording until a data occupation amount in said recording data storage area reaches a predetermined threshold, entering a recording state starting the data recording when the data occupation amount exceeds the predetermined threshold, and recording data in the  
20 recording area of the information recording medium; and a step of reproducing data in the reproducing step after waiting for at least a completion of recording continuously recordable data of the data in said recording data storage area when a reproduction request  
25 is received during the recording state in the recording

step, is provided.

27. The information recording method as claimed in claim 23, wherein:

5           said recording step comprises a step of  
keeping a waiting state of waiting before starting data  
recording until a data occupation amount in said  
recording data storage area reaches a predetermined  
threshold, entering a recording state starting the data  
10 recording when the data occupation amount exceeds the  
predetermined threshold, and recording data in the  
recording area of the information recording medium; and  
a step of transferring the data from the recording data  
storage area to a reproduction request sender when a  
15 reproduction request from a recording area to record the  
data from said recording data storage area is received  
during the waiting state in the recording step is  
provided.

20           28. The information recording method as claimed in claim 23, wherein:

          said control step comprises a step of setting  
a size of said reproduced data storage area so that said  
size becomes smaller than the recording data storage  
25 area.

29. A recording medium recording a program  
for causing a computer to execute a control step of  
dividing a storage area of temporary storage means  
temporarily storing data in data recordable information  
5 recording medium on the occasion of recording and/or  
reproduction, into a plurality of areas according to a  
mode of recording of the data in said information  
recording medium.

10 30. The recording medium recording the  
program claimed in claim 29, wherein:

said control step comprises a step of storing  
data in a respective predetermined buffering manner in  
each area.

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31. The recording medium recording the  
program claim 29, wherein:

said control step comprises a step of storing  
data in at least one of the respective areas in a ring  
20 buffering manner.

32. The recording medium recording the  
program claimed in claim 29, wherein:

said control step comprises a step of storing  
25 data in a ring buffering manner in which a ring start

pointer and a ring end pointer can be set, and data is stored in the ring buffering manner in at least one of the respective areas with setting the ring start pointer and the ring end pointer.

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33. The recording medium recording the program claimed in claim 29, wherein:

a recording step of recording data in the recording area of the information recording medium and a  
10 verifying step of carrying out verifying processing of reproducing data from the recording area after being recorded in said recording step and detecting a defect are provided; said control step comprises a step of dividing the storage area of the temporary storage means  
15 into at least a recording data storage area storing data to record in said information recording medium and a verification storage area storing data reproduced by said verifying step; the data to record in the information recording medium is stored in said recording  
20 data storage area; and the recorded data reproduced by the verifying step is stored in said verification storage area.

34. The recording medium recording the  
25 program claimed in claim 33, wherein:

said control step comprises a step of holding the data stored in the recording data storage area until the verification processing by said verifying step is completed.

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35. The recording medium recording the program claimed in claim 33, wherein:

said control step comprises a step of holding at least data of the data stored in the recording data storage area from among the data stored in said recording data storage area, and said at least data to hold is one for which the verification processing by said verifying step is not completed.

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36. The recording medium recording the program claimed in claim 33, wherein:

said control step comprises a step of setting a size of said verifying storage area so that said size becomes smaller than the recording data storage area.

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37. The recording medium recording the program claimed in claim 29, wherein:

a recording step of recording data in the recording area of said information recording medium and a reproducing step of reproducing data recorded in the

25

recording area of the information recording medium are provided; and said control step comprises a step of dividing the storage area of said temporary storage means into at least a recording data storage area  
5 storing data to record in the information recording medium and a reproduced data storage area storing data reproduced from the information recording medium; and, when a reproduction request is received during recording in said recording step, data reproduced from the  
10 information recording medium is stored in said reproduced data storage area in said reproducing step.

38. The recording medium recording the program claimed in claim 37, wherein:

15           said recording step comprises a step of recording data sequentially in the recording area of the information recording medium.

39. The recording medium recording the program claimed in claim 37, wherein:

20           said recording step comprises a step of keeping a waiting state of waiting before starting data recording until a data occupation amount in said recording data storage area reaches a predetermined  
25 threshold, entering a recording state starting the data



recording when the data occupation amount exceeds the predetermined threshold, and recording data in the recording area of the information recording medium; and a step of immediately reproducing data in the reproducing step when a reproduction request is received during the waiting state in the recording step, is provided.

40. The recording medium recording the program claimed in claim 37, wherein:

said recording step comprises a step of keeping a waiting state of waiting before starting data recording until a data occupation amount in said recording data storage area reaches a predetermined threshold, entering a recording state starting the data recording when the data occupation amount exceeds the predetermined threshold, and recording data in the recording area of the information recording medium; and a step of reproducing data in the reproducing step after waiting for at least a completion of recording continuously recordable data of the data in said recording data storage area when a reproduction request is received during the recording state in the recording step, is provided.

41. The recording medium recording the program claimed in claim 37, wherein:

said recording step comprises a step of keeping a waiting state of waiting before starting data  
5 recording until a data occupation amount in said recording data storage area reaches a predetermined threshold, entering a recording state starting the data recording when the data occupation amount exceeds the predetermined threshold, and recording data in the  
10 recording area of the information recording medium; and a step of transferring the data from the recording data storage area to a reproduction request sender when a reproduction request from a recording area to record the data from said recording data storage area is received  
15 during the waiting state in the recording step is provided.

42. The recording medium recording the program claimed in claim 37, wherein:

20 said control step comprises a step of setting a size of said reproduced data storage area so that said size becomes smaller than the recording data storage area.